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ABSTRACT

This student study guide is one of three documents in the emergency medical services (EMS) instructor training program. This study guide is designed as a training aid for the student. It provides an overview of the objectives and content of each course lesson and includes study suggestions to aid trainees in achieving course objectives. The training course covers all instructional techniques currently considered to be within the responsibilities of an entry-level EMS instructor. The course consists of 12 lessons involving 40 hours of instruction and participation. Lessons are principles of adult learning, student learning styles, development and utilization of instructional objectives, preparing and using lesson plans, preparation and use of instructional aids, class participation techniques, mini presentation one, practical skill instruction, providing student feedback, evaluating student performance, mini presentation two, and orientation to Department of Transportation/National Highway Traffic Safety format and materials. Appendixes include a 45-item listing of selected references on instruction and learning and handouts and worksheets pertinent to some of the lessons. (YLB)

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U.S. Department of Transportation
National Highway Traffic Safety Administration

Emergency Medical Services Instructor Training Program
A National Standard Curriculum

Student Study Guide

First Edition — 1986

U.S. DEPARTMENT OF EDUCATION
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Preface

The National Highway Traffic Safety Administration has assumed responsibility for the development of training programs that are responsive to the standards established by the Highway Safety Act of 1966 as amended. These training programs are designed to provide national guidelines for training. It is NHTSA's intention that they be of the highest quality and be maintained in a current and up-to-date status from the point of view of both technical content and instructional strategy. To this end, NHTSA supported the current project which involved the development of a curriculum package deemed of high value to the States in carrying out their annual training programs.

While NHTSA has successfully developed numerous training programs for EMS personnel—i.e., Basic EMT, EMS Dispatcher, First Responder and EMT-Paramedic—which have served as a national standard for many years, the instructional delivery of those standardized programs varies markedly. In the majority of programs nationwide, instructors have little or no formal education or training in instructional design and delivery. Recognizing the lack of standardization and the limited background of EMS instructors, this training program was developed.

NHTSA wishes to thank Technical Assistance and Systems Consultation, Inc., for their work in the coordination of this project. Particularly helpful was TASC's recognition of the need for extensive review and input from current EMS instructors and prominent EMS organizations. Dr. Michael L. Tracy served as the principal investigator for TASC, Dr. Fred Kladder and Dr. Carl F. Calkins served as special advisors to TASC during this effort.

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John Sigafoos, representing the National Association of Emergency Medical Technicians.

Janet Head, representing the Society of Instructor/Coordinators, a division of the National Association of Emergency Medical Technicians.

Introduction

This Student Study Guide document is one of three documents prepared for the Emergency Medical Services (EMS) Instructor Training Program. It was designed as a training aid for the student. As such, it provides an overview of the objectives and content of each course lesson and includes study suggestions to aid trainees in achieving course objectives. Two other documents complete the training package: A *Course Guide* which contains planning and management information required by the course coordinator to administer the training program and an *Instructor Lesson Plans* document which contains detailed outlines of course content and guidance for teaching each course lesson. The training course covers all instructional techniques currently considered to be within the responsibilities of an entry level EMS instructor. The training program is designed under the assumption that each student is competent in the clinical knowledge and skills in the area of EMS he will instruct in, e.g., basic EMT. This training program focuses on the instructional and training methods which will allow the new instructor, once s/he has completed this training, to impart that clinical competence to his or her students. This course develops skills in instructional design, delivery and evaluation. It also provides an orientation to the structure and design of NHTSA EMS training materials.

The purpose of the training is to ensure individual competency in each student by the successful completion of each objective. The course consists of 12 lessons involving 40 hours of instruction and participation. Within that time frame 10 hours is allowed for the students to prepare, deliver and receive corrective feedback on two mini presentations. Those times are calculated on the first session (lesson 7) including one three to five minute presentation and five minutes allowed for review and critique. The second session (lesson 11) is scheduled for a ten minute presentation and ten minutes of review and critique for 12 students. Times will have to be adjusted accordingly to accommodate larger or smaller groups of students. The titles and times required for each of the 12 lessons are provided on page vi of this guide. Additional modifications to this training program may be necessary to meet specific certification requirements within individual States. The course administrator should check with the lead State EMS agency or office for the specific requirements. It is expected that such modifications will be in the form of supplemental information and that the essential information covered in this curriculum will be presented.

This *Student Study Guide* includes a section for each course lesson. For lessons in which new skills and knowledge are taught, the following are included:

An introductory paragraph describing the purpose and need for the lesson.

Objectives that students should be able to achieve upon completion of the lesson.

An overview of lesson contents designed to serve both as a study guide during the class and as a reference manual after the training.

Study suggestions directed largely toward simulation of performance required of an instructor.

Course Lessons

Lesson 1. Principles of Adult Learning. (2 hrs.) The student is introduced to general learning theory and the specific principles of adult education (andragogy).

Lesson 2. Student Learning Styles. (3 hrs.) The student is provided with information relating to methods by which specific individuals learn and retain information and skills. The student is shown various styles and techniques used by a variety of instructors which enhance student learning rates and retention.

Lesson 3. Development and Utilization of Instructional Objectives. (3 hrs.) The student learns techniques of developing and utilizing instructional objectives as the foundation for sound instructional design. The three components (Conditions, Performance and Criteria) of measurable objectives are stressed and examples are drawn from the student's expected content area, e.g., First Responder.

Lesson 4. Preparing and Using Lesson Plans. (4 hrs.) The essential components of a lesson plan are discussed in general and the format utilized within the DOT/NHTSA EMS curricula packages are reviewed in detail.

Lesson 5. Preparation and Use of Instructional Aids. (4 hrs.) General principles of audiovisual presentations and the use of other instructional aids is presented. Specific instruction is presented in how the student can prepare his own aids if none are available or are cost prohibitive.

Lesson 6. Class Participation Techniques. (4 hrs.) Methods of encouraging student participation in the instructional process are introduced. Techniques of fielding questions and creating a positive learning environment are presented.

Lesson 7. Mini Presentation One. (4 hrs.) The student prepares and delivers a 3 to 5 minute presentation on a non EMS related topic which does not include skill instruction. Peer and faculty evaluation is provided. This session serves as a baseline for subsequent review of the candidates' skills during the mini presentation in lesson 11.

Lesson 8. Practical Skill Instruction. (4 hrs.) Specific instructional technology used in psychomotor skill acquisition such as task analysis are discussed and practiced. The importance of skill acquisition and maintenance in EMS programs is stressed.

Lesson 9. Providing Student Feedback. (2 hrs.) The principles and techniques of corrective feedback as an instructional method are discussed. The broader spectrum of analyzing performance problems is introduced.

Lesson 10. Evaluating Student Performance. (3 hrs.) Methods of evaluating cognitive and psychomotor objectives are presented. The student is introduced to both formal and informal evaluation processes.

Lesson 11. Mini Presentation Two. (6 hrs.) As an evaluation of the student's ability to instruct, each student prepares and presents a 10 minute segment of a lesson specific to the content area in which he will be teaching. Review and evaluation is provided to each student by the faculty and peers. Videotape may be used for self evaluation.

Lesson 12. Orientation to DOT/NHTSA Format and Materials. (1 hr.) The curricula packages available for EMS instruction from DOT/NHTSA are introduced. Specific review of the content area in which the students will be teaching is completed and local resources will be discussed. State, regional and local policies relative to EMS training programs are discussed as applicable.

Specific performance objectives are reproduced at the beginning of each unit.

Lesson 1
Principles of Adult Learning

Introduction

The effectiveness of the DOT/NHTSA EMS curricula is dependent on the quality of the instructional delivery of those materials. Many EMS instructors rise through the ranks of good clinicians with little or no experience or formal education in instructional design or effective training delivery. The development of specific skills and instructional techniques can increase effectiveness in areas of extreme instructional difficulties such as teaching patient assessment and other practical skills. Effective instruction may increase student performance post training, thereby creating a system of more efficient EMS delivery by well trained individuals.

Objectives

At the conclusion of lesson 1, the instructor trainer will have provided sufficient information, demonstration and practice to the student to ensure his/her ability to:

- Define training
- Distinguish between training and education
- Define learning
- List 3 general theories of learning and describe each
- List 6 characteristics of adult learning
- List 3 characteristics of the most influential instructor in their lives
- Identify the 4 roles of an instructor.

Overview of Lesson Contents

The course has been designed so that upon successful completion, the student will be able to:

- Obtain the appropriate curricula packages developed by DOT/NHTSA
- Organize and prepare materials for presentation
- Effectively deliver and ensure the retention of cognitive and psychomotor objectives contained within the curriculum package
- Prepare instructional aids which will increase the effectiveness of the training program delivery
- Ensure that all equipment and materials necessary for EMS student learning is present and operational
- Evaluate EMS student performance and provide structured corrective feedbck to improve subsequent performance
- Provide a mechanism for evaluating training program effectiveness.

Education

A general definition of *education* is the general acquisition of knowledge for the betterment of self. While it is an important process as it teaches problem solving and general study habits, it does not specifically prepare people for their vocations or jobs.

Training

The process of acquiring the knowledge and skills necessary to perform a specific task is known as *training*. Training is common in industry and serves as the basis for vocational centers and on-the-job training or apprenticeship programs.

Training is designed to affect performance, which is composed of 4 components:

- Knowledge of when, why and how to accomplish the task;
- Psychomotor skills;
- Effectiveness in completing the task;
- The desire or motivation to complete the task.

The motivation to learn can be influenced to a large degree by effective training methods and the attitude of the trainer.

Once the student has left the classroom the trainer has far less responsibility or control over the factors which motivate people to perform correctly.

Learning

Learning can be defined as an active process between the instructor and student which results in gaining knowledge, comprehension or mastery of information.

There are several general theories of learning and the learning process, including:

Sensory Stimulation: This suggests that more attention be given to the senses rather than emotional or intellectual processes involved in learning. It stresses the importance of involving all of the senses in the learning process. It can be validated to a certain degree by the following figures on students' immediate recall:

10% of what they read

20% of what they hear

30% of what they see

50% of what they see and hear

70% of what they say

90% of what they say and do.

There are some problems associated with the sensory stimulus theory such as the student taking a more passive role and the burden of learning tends to fall more on the instructor.

Reinforcement Theory: This is strongly influenced by Skinnerian philosophy which suggests that behavior is strongly influenced by the consequences or results of the behavior.

The two general principles involved are: 1) Behavior which is followed by a pleasant consequence (reinforced) is more likely to occur again, while 2) Behavior which is followed by an unpleasant consequence (punishment) is less likely to occur again.

This theory is ineffective if abused or misunderstood because students seldom "do it right" on their first attempt. It does serve as a strong rationale for creating a positive learning environment.

Facilitation Theory: This places the emphasis on the student or learner's involvement in the learning process. It stresses the role of the instructor as a facilitator rather than a stimulator or controller of the learning process. It suggests that the instructor should be as concerned with his or her students as with the content.

The problems associated with this theory are ones of practicality, such as it is not conducive to tight schedules and time constraints and it is not always compatible with standardized curricula.

It does provide an openness in the learning process and an increased student involvement in the design, delivery and evaluation processes.

The theories surrounding *adult learning* assume that there are large differences between how adults and children learn. Most importantly it stresses the need for two-way communication.

The main principle of the theories of adult learning are based on the notions that:

- Adults see themselves as self-directing
- Adults are problem centered
- Adults like to participate
- Adults need to relate new material and information to previous experiences
- The learning climate must be collaborative
- Adults need to see a direct benefit to the learning activity.

No one theory of learning, training or education is 100% correct. Take the points of each that are effective for you and your students. Be exploratory and innovative; performance outcome of your students is the final determinant of success.

While every instructor displays an individual personality there are certain similarities found in all of those who are truly effective.

Characteristics:

- Knowledgeable of content and the instructional process
- Skilled in the content area and the instructional process
- Motivated, believes in the content, in the instructional process and in the student.

The instructor may be called upon to perform a variety of duties. The four roles of an instructor are often identified as: a *designer* of training, an *instructor*, an *administrator* and a *consultant*.

The *instructor* emphasizes the delivery of information and the evaluation of instruction.

The *designer* is concerned with identifying training needs, developing a training strategy to meet those needs and seeking unique or innovative methods of delivery.

As an *administrator*, the instructor becomes concerned with recordkeeping, regulatory requirements, budget and financial considerations and logistical concerns.

The *consultant* role is less used in EMS than in some other areas of training. A consultant is concerned with field performance problems, concerned with providing an ongoing support system, concerned with serving as a resource to other instructors and with finding creative solutions to training and performance problems.

Study Suggestions

1. List what percentage of your total educational experiences has been training in nature, that is, oriented towards preparing you to perform in a specific situation.
2. Identify 3 advantages and disadvantages of each of the general learning theories presented here as they relate to your specific setting and content.
3. Describe the differences in adult learning and the general assumptions about how children learn.
4. Identify the instructor, teacher or trainer who has had the greatest positive influence on your life. Summarize the 3 things that made him/her most effective.

Lesson 2
Student Learning Styles

Introduction

This lesson is designed to serve as an introduction to individualized learning processes. It should challenge the student to look for innovative and individualized methods of instruction. The future instructor must realize the need for individualized approaches to overcome differences in learning styles and rates.

Objectives

At the conclusion of lesson 2, the instructor will have provided sufficient information, demonstration and practice to the student to ensure his/her ability to:

- List 4 intrinsic factors which influence individual learning rates
- List 4 external factors which influence individual learning rates
- Define individual needs assessment
- List 3 methods of increasing student learning rates
- Define communication
- List the 2 types of communication
- Describe 5 areas of non-verbal communication
- Describe 5 methods of increasing the effectiveness of verbal communication
- Name 2 local cross-cultural groups likely to be encountered in the area of region
- List 3 basic principles for improving cross-cultural communication
- List 7 specific steps which can be taken to increase communication effectiveness in cross-cultural situations
- Describe 1 negative feeling regarding the practical exercise.

Overview of Lesson Contents

The desire to learn is a complicated issue clouded by both *intrinsic* and *external* factors.

Intrinsic factors include the type, level, outcome and value of previous educational experiences. They also include whether the student has had any previous contact with the content of the training program, either in an experimental sense or a training sense. The student's natural abilities—including sensory, cognitive, psychomotor—when coupled with the interest or lack of interest in learning the material are also included in the intrinsic category.

External factors would include whether the content is interesting, valuable and understandable and whether the instructor is knowledgeable, effective and concerned. The environment also plays an important role in the learning process. Is the room comfortable and well arranged for learning? Are distractions held to a minimum? Students, particularly adult learners, need support and encouragement from family, peers and the instructor.

The learning rate can be influenced in a number of ways. One of the most effective is to individualize the instruction to whatever degree is possible and practical. To do so you must identify the entry level knowledge and skills for each student, monitor and measure the student's progress during each session in relation to objective attainment and make yourself available for individualized help in overcoming difficulties.

Begin the training program with the stated expectation that the intended outcome is for each student to meet each objective and that you will assist each student to whatever degree is possible regardless of their individual learning rate. Training should not be a competition for overachievers, but rather an opportunity for each student to become proficient with the material.

If an individual is failing to meet objectives in a timely fashion, intervene early; don't allow the student to fall hopelessly behind.

Individual needs assessment can be conducted by simply identifying what knowledge and skills the student has coming into the program, subtracting those from the total body of knowledge and skills expected at the completion of the program and concentrating on the knowledge and skills which are deficient. This process allows the instructor to design training strategies around those areas of greatest need in each student, capitalizing on previous information and experience.

The rate of learning is often directly proportionate to how involved the student is in the learning process. The student should be involved at all levels including the course design, the instructional delivery and in the evaluation and feedback processes.

Likewise it is important to control the learning climate. It should be comfortable, non-threatening, reinforcing and important.

Communication can be defined as the process of transmitting one's thoughts, wishes or desires to another. It implies that there is a response or acknowledgement from the receiver.

To ensure effective communication a two-way circuit must be established and constantly evaluated. It is important to realize that the role of the sender and receiver are constantly changing.

There are 3 levels of communication which are important to the instructor. They are *non-verbal principles, verbal principles* and *listening principles.*

Non-verbal principles include:

- Eye contact
- Travel
- Time
- Gestures
- Posture
- Pace.

Verbal principles include:

- Enthusiasm
- Reinforcement
- Emphasis
- Questions
- Feedback
- Control.

Listening principles include:

- Openness
- Eye contact
- Interest
- Patience
- Acknowledgement.

Cross-cultural communication barriers exist between various groups or individuals. The reasons for such barriers may include race, religious custom, language, social custom, ethnic background or previous association.

Basic principles for overcoming barriers include:

- Recognizing that communication has not been successful
- Acceptance of others' communication style
- Positive intervention to improve communication.

Specific suggestions are:

- Listen
- Allow sufficient time
- Be non-threatening
- Talk openly about communication
- Talk openly about discrimination
- Seek help
- Appreciate differences.

Study Suggestions

1. List 3 intrinsic factors which are influencing your desire to learn the information presented in this training program. List 3 external factors.
2. Discuss the problems associated with attempting to individualize instruction in the setting where you intend to instruct. List the benefits of such an approach.
3. List 4 ways in which you can involve the students in each of the following areas:
   a. Course design
   b. The instructional process
   c. The evaluation process.
4. List all of the non-verbal cues that you have noticed when people aren't listening or aren't interested in what you are saying.
5. List 2 specific groups which may provide specific cross-cultural communication challenges. Discuss methods of improving communications with those groups.

Lesson 3
Development and Utilization of Instructional Objectives

Introduction

Since many instructors in the EMS field have little formal background and training in instructional design and delivery, they are often intimidated by the entire process. A clear understanding of objectives and their role as the foundation for instruction help the potential instructor to focus his or her attention on the objectives and make the process more clear. Objectives are used in designing the training, instructional delivery and in evaluation of the training process.

Objectives

At the conclusion of lesson 3, the instructor will have provided sufficient information, demonstration and practice to the student to ensure his/her ability to:

- Define a performance objective
- Describe 4 advantages to designing learning experiences using objectives
- List the 3 essential components of a performance objective
- State the most critical grammatical component of a performance objective
- List 10 action verbs relevent to EMS
- Describe the role of performance objectives in evaluation
- Write 3 objectives which define cognitive performance containing the three essential components of an objective
- Write 3 objectives which define psychomotor performance containing the three essential components of an objective.

Overview of Lesson Contents

Performance objectives may be defined as: specific, observable and measurable statements of intent describing a proposed change in the student (learning). They serve as a description of the performance we want the student to be able to demonstrate. They are useful because:

- They help the instructor to design, select and provide appropriate learning experiences
- They communicate to others, particularly the student, what is expected
- They serve as a basis for evaluation, both ongoing and terminal
- They help to ensure that performance is the outcome of the training.

They are distinguished from goals in that goals are more global and less tangible in nature.

There are 3 essential components of any objective. They are:

Conditions: Under what circumstances will the performance occur?

Performance: What will occur?

Criteria: How well will it be done?

When describing performance it is necessary to focus on the verb. Passive verbs such as to know or to understand are not observable and therefore not measurable. Use action verbs such as to lift, fasten, apply, list, label and diagram.

The following list may be useful to select verbs from as you develop objectives: apply, choose, categorize, copy, chart, define, demonstrate, diagram, detect, differentiate, document, fasten, find, isolate, lift, locate, mark, name, perform, rank, provide, quote, collect, trace, count, classify, describe, designate, distinguish, discriminate (between), repeat, immobilize, identify, label, list, match, note, place, order, and select.

Objectives may be used in a variety of ways. For the instructor, objectives help to determine the effectiveness of his or her instruction, they help to

measure interim progress of the individual as well as the class and they serve as a basis for evaluating terminal progress.

The students should find objectives useful in allowing them to track their own progress. Their completion should provide reinforcement and by reviewing the objectives s/he knows how much training is left to complete. Objectives should also help the student to focus on the important points of the curriculum and weed out less important concepts.

Objectives allow the program to gauge training effectiveness both of the individual instructor and the overall program. They serve as a format for measuring cost effectiveness and they link the training and the evaluation processes.

Study Suggestions

1. Review the objectives for this and other lessons in this manual and identify the three components of each objective. Identify those which could be strengthened.
2. Make a list of 10 action verbs specific to EMS and which are of a psychomotor, rather than a cognitive, nature.
3. Write 3 objectives specifying what you intend to achieve by the end of this training program.

Handouts

Handouts and worksheets pertinent to this lesson are found in Appendix B.

Lesson 4
Preparing and Using Lesson Plans

Introduction

During his or her career as an EMS instructor, the student will be called upon to present a variety of different material to a variety of different audiences. The ability to develop and organize material in a clear, concise and standardized format will help to ensure the success of each presentation.

Objectives

At the conclusion of lesson 4, the instructor will have provided sufficient information, demonstration and practice to the student to ensure his/her ability to:

- Define a lesson plan
- List the 6 essential components of a lesson plan
- Describe the purpose of each of the 6 essential components of a lesson plan
- Provide 1 example of the 6 general categories of presentations and identify the 3 most effective categories
- Write a lesson plan for a 3 to 5 minute presentation containing the 6 essential components and following the DOT format on a non-EMS-related topic.

Overview of Lesson

A lesson plan may be defined as a written method of organizing content, materials, equipment and resources in such a manner as to ensure the outcome of a training session.

Components:

- Objectives (What)
- Requirements (How)
- Instructor preparation/tasks (Who)
- Time
- Content
- Notes.

Using **objectives** allows the instructor to immediately understand the expected outcome of the class. They should indicate the level of expected understanding or achievement of the students. By virtue of relative criteria, they should weigh the importance and depth of the material. They should present the chronological order of the session.

Requirements should include a description of the necessary administrative and instructional materials including such items as registration forms and handouts. They should specify equipment needs for audio visual presentations as well as any which might be required for demonstration or practice.

The required or suggested **visual aids** should be specified. Such things as films, slides, overheads, charts and x-rays should be mentioned. Additionally, any visual aids which may need to be developed spontaneously should be listed.

A listing of the number and qualifications of the **instructors** is necessary to ensure adequate manpower, particularly during practical exercises.

A section should be included on **Instructor Preparation or Tasks** in which the instructor(s) is told how to prepare, what to bring and what his responsibilities are in relation to orienting other instructors or aides.

There should be a column for **times** in the lesson plans which should provide a running total so that the instructor can pace the content as it was intended and place the appropriate emphasis on certain sections of the curriculum. Of course, the total time to be spent on the lesson should also be included.

The **contents** should be specified in an outline form and are not intended to be all-inclusive statements. From the outline, the instructor should embellish the material based on personal experience, knowledge and local protocols. For clarity, the outline should be in correct notational pattern with only the key points listed to refresh your memory. The outline is not intended to be read, but to serve only as a roadmap to allow you to present material in a concise, logical format.

The outline form should contain:

Administrative matters
Introduction
Lesson coverage
Need for lesson
Lesson objectives
Body
Summary
Questions.

There should always be a space for **instructor notes** paralleling the content outline which provides for your personal notation, including cues for AVs, questions, examples and correct spellings. It should also identify technical information or any specific methods of instruction you intend to employ.

Whenever you are selecting a format or method for instruction you should realize that some are considerably more effective than others. The following is a list of methods in descending order of effectiveness:

Real Experience (clinical, field or apprenticeship) is the most effective method of learning. However, it may not be the most realistic since it is often a slow process which requires the student to make mistakes to learn. It also requires a substantial investment of money and personnel. Lastly, it is difficult to establish and control and there is always a substantial risk to equipment and other personnel.

While **Contrived Experiences** (simulations) are not as effective as real experiences, they have the advantage of being far easier to create, control and evaluate. They provide a substantially safer environment for learning and are significantly less costly. The key to successful simulations is that they are made as realistic as possible and therefore as close to the real experience category of learning as possible.

Audiovisual presentations are one of the more common methods of providing information. While they are relatively effective, they do not have as great an effect as either real or contrived experiences. They can be effective for imparting a large body of material to a large group.

Visual Presentations such as film strips or slides are considerably less effective than any of the above categories. Retention rates are very low, and without appropriate explanations, visual presentations are subject to diffuse interpretations.

The use of **Audio Presentations** is not common in EMS instruction except in the Dispatcher and "National Emergency Aid Radio" monitoring programs. Since this is a relatively ineffective training method, this process must be monitored continuously to ensure the desired outcome. Of course straight lecture also falls into this category and should therefore be avoided.

Written Presentations are the least effective method of transmitting information. While they do have some use in background reading, they should never be relied upon solely to convey information in a training setting.

The four "Cs" of effective delivery are: **Control, Composure, Concern** and **Communication**.

Controlling the environment, including the room and the arrangement of equipment and materials, will help set the tone for the training. As an instructor you must gain *composure* so that you project a positive self image to your students. You must display a *concern* or belief in your students, the content, and in your ability to instruct. *Communication* is, of course, one of the most important aspects. Make certain that the two-way circuit is open and remember the principles of non-verbal, verbal, and listening to be truly effective.

The DOT/NHTSA EMS training materials all contain each of the components which have been discussed in this lesson. They serve as a good model to pattern your lesson plans after. While there are slight differences in the format of each package, the similarities are far more striking. They are designed in such a manner so as to encourage customization within the confines of a nationally accepted curriculum.

Study Suggestions

1. Write a brief lesson plan on any topic and include all of the essential components. Are there any others which you feel should be included?
2. Using the content area which you will be instructing in once you have completed this training program, list knowledge or skills which could be best transmitted using each of the instructional methods listed in this lesson.
3. Review a sample of a DOT/NHTSA EMS lesson plan and identify each essential component it contains.

Handouts

Handouts and worksheets pertinent to this lesson are found in Appendix B.

Lesson 5
Preparation and Use of Instructional Aids

Introduction

During your career as an EMS instructor, you will encounter a variety of training aids on the market. You must be able to evaluate them objectively before purchasing or utilizing them. Since AV presentations are so common in EMS instruction you must be thoroughly familiar with a variety of media possibilities. Since the use of AVs can increase learning and retention rates you must be comfortable with using a range of aids to assist in the instructional process. The instructor also needs to be able to develop his or her own materials if none are available or if they are not of sufficient quality to enhance the material being presented.

Objectives

At the conclusion of lesson 5, the instructor will have provided sufficient information, demonstration and practice to the student to ensure his/her ability to:

- Describe the purpose of an audiovisual aid
- Describe the limitations of audiovisual aids
- List 3 advantages of audiovisual aids
- List 6 types of audiovisual aids and describe 1 advantage and 1 disadvantage of each
- Describe the method for reducing the possibility of audiovisual failure
- Make 3 overhead transparencies to support your 10 minute presentation lesson plan.

Overview of Lesson Contents

The purpose of using audiovisual aids is to support a presentation or lesson. The aids selected should emphasize the important points, stimulate the student's senses, reinforce key concepts and enhance the clarity of your presentation.

Remember that audiovisual aids do not teach by themselves; they are meant only to enhance your presentation.

When selecting or preparing audiovisual aids, remember the four "Rs," **Readable, Reliable, Relevant** and **Repetitious**.

- To be **Readable**, the aid must be legible, placed in such a manner so as to be visible to everyone and of the appropriate format for the size of the group and the room.
- **Relevancy** refers to whether the aid is pertinent to the topic being presented. Aids that must be preceded with a lengthy explanation or an apology are probably not worth using.
- When exploring **Reliability** of an AV, remember to choose the least complicated aid that will still do the job for you effectively. Make certain that the aid is dependable and don't build your entire presentation around it in the event that it fails or is not available.
- **Repetitious** means that the materials should support your presentation, should stress the important points and should summarize key concepts.

There is a wide variety of media and audiovisual support available. The most common formats include:

Chalkboard. The main advantages of the chalkboard are that it is readily available and inexpensive. It encourages spontaneity, is easily changed or updated and it is highly dependable.

Its main disadvantage is that it provides no permanent record. There are limitations on its portability and the size of the audience that it can be effectively used with. If used improperly, it places the instructor's back to the audience.

To use the chalkboard properly, prepare large complicated illustrations before class. Make certain that the writing is legible and don't talk while facing the board. Use it to involve your students in the learning process.

The **flipchart** has many of the same advantages of the chalkboard in terms of expense and availability. The most important additional advantage is that it does provide a permanent record.

Its disadvantages are that it provides limited writing space, changes are messy and, again, there are limitations on room and audience size.

To use the flipchart effectively, once again complete complicated or time consuming illustrations ahead of time. Make certain that writing is legible and involve the students. If large amounts of material are being recorded, use an assistant to write while you solicit the information.

Overhead transparencies maintain student attention, are relatively inexpensive and are easy to prepare. The instructor can face the audience while s/he is writing. The transparency can be produced in either a permanent or non-permanent mode. Overhead projectors are relatively common and transparencies are highly portable.

The disadvantages associated with overhead transparencies are that they do require projection equipment. They produce a keystone effect which is a tapering appearance and can be corrected to some degree by moving the top of the screen toward the audience. They also have room and audience size limitations.

Once again, prepare complicated transparencies ahead of time. Unwanted portions can be covered until you are ready to use them. Leave them on long enough for everyone to see, but not so long as to be distracting. Draw attention to key points.

Slides are one of the best media for large rooms or audiences. They can be either action oriented or "word" slides. Reference can easily be made back to previous material. They are relatively portable.

The expense and the production difficulties are two of the most significant drawbacks to slides. They do require projection equipment and the room must be darkened for maximum effectiveness.

When using slides, remember that action slides should only be left on briefly for maximum effectiveness. Word slides should be left on substantially longer. Make certain that the slides are in focus and use them only to reinforce or highlight key concepts.

The action oriented nature of **videotapes/discs** when combined with the relative ease of production make this an increasingly popular medium. They also offer an excellent benefit for evaluation of simulations. The fact that they can easily be backed up or frozen can serve to effectively highlight important points.

Their disadvantages include the fact there is a substantial initial investment, and that equipment is cumbersome and somewhat complicated. There are certain limitations on class size unless large projection screens are used.

The proper use of video includes an introduction to the segment of tape, explanations as necessary throughout the segment and a summary of key points at the end. Don't attempt to use video unless you are very proficient with the equipment.

Films are attention getting and action oriented. For this reason they tend to captivate an audience. Generally speaking they are of high quality.

Their disadvantages are that they are extremely expensive and require cumbersome equipment to project. They are not easily updated or changed

and the instructor has to make someone else's production "fit" the material that he is presenting. As with slides, the room must be darkened for maximum effectiveness.

The proper use of films is similar to that of video tapes: You introduce the film and make certain that everyone can see and hear, then summarize and answer questions at the end.

Handouts are a method of providing students with the most current information on a particular topic. They can provide viewpoints which differ from those presented in the textbook and can supplement the student's notes on a subject.

Disadvantages of handouts include the expense of duplicating, the amount of time spent researching and reviewing, and possible copyright infringements. The fact that they may provide a contradictory opinion can often be confusing or unsettling to the student.

Before handouts are used, they should be reviewed thoroughly. Contradictions or varying points should be explained or eliminated. If discrepencies exist, the student needs to know whom to believe.

Anatomy and physiology are particularly well suited to the use of **models and manikins**. Some aspects of performance such as CPR which cannot be practiced on "live" subjects are also effectively demonstrated and taught on a manikin or simulator. They can provide a mechanism for unsupervised practice.

There is a substantial initial investment involved as well as ongoing maintenance costs. They do not always accurately depict what you are trying to illustrate or demonstrate. They are generally very difficult to modify.

The most important factor in their use is that you inspect them to ensure that they are in proper working order and that you are totally familiar with their operation. Practice on manikins must be at least occasionally supervised to ensure that correct performance is being learned.

Games provide an alternative to typical instructional strategies. They can serve to lighten the learning atmosphere and make it a more pleasant experience. There is a high retention rate and they can serve to break down communication barriers.

Caution must be exercised to be certain that they do not diminish the importance of the material being presented. The amount of time and effort necessary to produce them must be weighed against the outcome. The "professional" atmosphere and the student/instructor relationship should be maintained.

Their proper use includes careful development and selection with a specific learning outcome in mind. Their intent and purpose should be carefully explained and the control of the classroom should be maintained.

The easiest way to avoid audiovisual failure is to remember the *KISS* principle, "Keep It Simple, Stupid." Select the least complicated and cumbersome media that will achieve the desired results. Remember that the outcome is far more important than the production. Try to avoid making any presentation totally dependent on AVs.

When using projectors or other electrical equipment, the first thing is to make certain that the equipment is available. Check to be certain that you know how to use it and that it is compatible with other items you may be using. Inspect all of the pieces or components to see that each piece is in working order. You should always have: three-prong adaptors, extension cords, spare bulbs, take-up reels, slide trays and screens. Set all equipment up before

you need them and establish that each is in working order. Focus and set sound levels so that when you need sound you can simply turn it on.

Always have a backup system or a plan B. If there is no way that the material can be presented without the AV, then prepare alternate material such as a practice session in the event of equipment failure or non-availability. For the most part, avoid making any presentation totally dependent on equipment. Remember that AVs are not designed to teach but to support instructors. Since overhead transparencies are effective, available and relatively inexpensive, the instructor should be familiar with some of the typical production methods. The most simple is to simply write on the acetate sheet. "Grease pencils" are neither very effective nor pleasant to use. Pens of either a permanent or non-permanent nature produce much better results and are far easier to use. When preparing overhead transparencies ahead of time and if they will be used more than once, the permanent variety produces the best results. Stencils or lettering guides improve the quality and appearance. Professional results can be obtained with transfer lettering. Place the lettering either directly on the acetate or on paper and then copy with a photocopy machine. If you intend to use a photocopy machine, make certain that the transparencies you are using are compatible with the specific machine that you are using because some transparancies will melt and cause a great deal of damage.

Study Suggestions

1. List a particular portion of the curriculum you intend to teach that would be particularly well suited to each of the types of audiovisual aids listed in this lesson.
2. Create one illustration on either a chart or overhead transparency which will support your 10-minute mini presentation in lesson 11.
3. Make a list of sources for audiovisual equipment or materials in your community.

Lesson 6
Class Participation Techniques

Introduction

During your career as an EMS instructor, you will encounter a variety of individuals in the classroom. Given the highly voluntary nature of much of our EMS system, each student must be encouraged to learn and perform to his or her maximum potential. The future instructor must realize the need for individualized approaches to overcome differences in participation attitudes.

Objectives

At the conclusion of lesson 6, the instructor will have provided sufficient information, demonstration and practice to the student to ensure his/her ability to:

- List 3 methods of increasing student participation in the learning process
- List 4 common room arrangements and describe 1 advantage and 1 disadvantage of each
- Describe 2 methods of directing student discussion
- List 5 general principles of questioning students
- Demonstrate an acceptable technique for increasing participation in a "quiet" student and controlling an "over-participating" student.

Overview of Lesson Contents

To encourage maximum student participation the instructor should:

Select Appropriate Methods

- Limit straight lecture
- Vary techniques within lessons
- Use questions
- Use guided discussion.

Set Expectations

- *Establish a feedback loop*
- *Solicit input and discussion*
- *Inform students that participation will be expected.*

Create a Positive Learning Environment

- Make room comfortable
- Remove physical barriers between the instructor and the student
- Make learning fun, be enthusiastic.

Room arrangements are typically determined by the type of presentation, the size of the audience, the size of the room and the amount of interaction desired. There are four typical room arrangements although the variations on those themes is nearly limitless.

Theater Style is set up with rows of chairs facing forward with speaker in front center, sometimes on a platform. Its advantages are that it is space efficient, handles large audiences and provides good visibility for AVs. Its disadvantages include: no writing area for students, it limits participation between students and the instructor, creates a learning barrier between the students and the instructor and precludes interaction between students.

Classroom Style has rows of tables or desks facing forward; the instructor is centered in the front, lecture or lecture/discussion oriented. Its main advantages are: there is a writing area for students, it provides good visibility for AVs and allows limited student-to-student interaction, laterally. The disadvantages are that it is less space efficient, increases the barrier between the student and the instructor, limits the mobility of the instructor and is not effective for discussion format.

Board Room Style is composed of one or more large tables with students seated all of the way around; the instructor is typically at the head of the table. It is used for lecture, lecture/discussion or guided discussion. Its chief

advantages include: it encourages student/instructor interaction, encourages student/student interaction, creates a less formal atmosphere and allows for increased student workspace. Among its disadvantages are that it is not space efficient, it is limited to small groups, affords poor visibility for AVs and reduces focus on the instructor.

"U" Shaped Style is an open-ended arrangement of tables forming a "U" facing the front of the room; the instructor is positioned between the legs of the "U." It can be used for lecture/discussion, guided discussion or demonstration.

Its advantages are that it removes barriers, encourages instructor movement and contact, encourages student/student interaction and provides good visibility for AVs or demonstrations. Disadvantages include that it is extremely space inefficient; thus it will handle limited group size.

The 2 main methods of increasing student interaction are through the use of **discussions** and **questions**.

Discussions are a dialogue among participants or between participants, usually oriented toward some question, content area or problem.

Characteristics of a good discussion include:

- Oriented toward a set of objectives
- Planned and controlled to ensure movement toward objectives
- Rewarding to students.

Advantages:

- High student involvement
- Creates student ownership
- Encourages problem solving.

Methods of directing:

- Keep discussion oriented toward objectives and "on track"
- Ensure the opportunity for all to contribute
- Do not allow single student domination
- Prevent the discussion from narrowing down and being of interest to only a few
- Conclude the discussion; don't allow it to drag on.

Questions are a method of increasing student participation by soliciting a response from individual students. This method stimulates thinking and encourages problem solving from the entire class.

Questions help the instructor:

- Motivate the group
- Inventory student knowledge
- Encourage active participation
- Evaluate instructional effectiveness
- Stress key points
- Clarify information
- Keep student attention
- Review previous material.

Theree are 2 main categories of questions, **direct** and **indirect**. Within those categories there are several types of questions, including:

- Directive, which review factual material
- Reflective, which check feelings
- Open, which test a student's inventory.

Keys to effective questioning:

- Direct questions; don't ask "are there any questions?"
- Allow time for response
- Don't call on someone until after you've asked the question
- Use an unpredictable sequence
- Reinforce those who answer
- Redirect student questions to the student body.

Constructing effective questions:

- Avoid "yes" or "no" answers
- Must be understandable
- Limited to one main thought
- Directly related to subject matter.

There are numerous kinds of behavior and attitudes displayed by students in any training program. Some of them can be disruptive or not conducive to student learning. Some of the typical ones follow although you will encounter numerous others.

The **overly talkative** person may be an eager beaver who is well informed or simply in need of attention. He can often be slowed down by asking a difficult question, although given enough time, the group will usually handle this type of person effectively.

During a **side conversation** it is helpful to determine whether it is related to the subject matter or of a personal nature. Asking the participants a question will often refocus their attention. Move towards where the conversation is taking place and simply pause the presentation until they have finished. Asking an opinion on previous material will test their attention and retention.

Students may be **negative or hostile** for a variety of reasons, including: prejudiced attitude, previous information which may be outdated, doesn't want to be there (lack of motivation), negative previous association with instructor, program or material or from peer pressure. Intervention may consist of asking the group what they think of his opinions, offer time to discuss it with him outside of class, say that time is limited and that you must move on or ask them to accept the class opinion for the time being.

The **non talker** may be bored, indifferent, feel superior, feel inferior, be shy or be unprepared. These feelings can often be overcome by asking them an easy question to build confidence or asking them to relate the subject matter to their personal experience. Any response should, of course, be reinforced. Counseling outside of class may be necessary.

The student who **rambles** may do so because he is ill prepared, likes to talk, has an insufficient experience base or is disorganized. Intervention may include restating the salient points, redirecting the question or simply moving on.

An inarticulate student may be so because of a lack of previous experience, lack of education, lack of communication abilities or lack of self esteem. They often need reinforcement and support. Don't answer for them. Allow time for a response, and restate answer but leave as much intact as possible. Asking them to give another example may help to clarify their information.

Study Suggestions

1. Write 3 questions to use during your 10 minute presentation to evaluate your instructional effectiveness and student retention.
2. Observe the instructor trainer for this program and note the frequency and type of questions s/he asks.

Lesson 7
Mini Presentation One

Introduction

During your career as an EMS instructor, you will be called upon to present a variety of material to a variety of students. Fundamentals of planning, preparation and presentation introduced in this class will serve as a valuable experience. It should also reinforce the principle that the best way to learn something is by doing it.

Objectives

At the conclusion of lesson 7, the instructor will have provided sufficient information, demonstration and practice to the student to ensure his/her ability to:

- Prepare a lesson plan for a 3 to 5 minute presentation on a non-EMS-related topic either assigned by the Instructor Trainer or selected by the student. This presentation should not be skill related
- Ensure that the lesson plan contains all of the essential components and is in a format similar to the standard DOT lesson plan
- Present a 3 to 5 minute instructional session on a non-EMS-related topic
- Observe other students, presentations and provide positive suggestions for improvement of subsequent lessons

Study Suggestions

1. Develop your lesson plan, check to see that it has all 6 of the essential components.
2. Review the four "Cs" of effective delivery and decide how you will apply each of them to this presentation.
3. Review the presentation evaluation form that will be used and list some general principles that will help you give positive and helpful feedback to your fellow students.

Handouts

A copy of a mini presentation evaluation form is contained in Appendix B.

Lesson 8
Practical Skill Instruction

Introduction

Current research indicates that the weakest area of both EMS instruction and performance is that which relates to practical skills and their appropriate application. Skill degradation post training is a well documented problem as is performance compliance. An assumption can be made that to a limited degree these problems stem from poor instructional techniques or inadequate emphasis on practical skills and performance during EMS student's initial and ongoing training. The importance of the information and techniques covered in this lesson can not be overstressed.

Objectives

At the conclusion of lesson 8, the instructor will have provided sufficient information, demonstration and practice to the student to ensure his/her ability to:

- Distinguish between rote skill demonstration and situationally oriented performance demonstration
- List the 3 components of a successful skill demonstration
- Define task analysis
- Describe 3 advantages of simulations as teaching techniques
- List the 3 factors which affect the outcome of simulations
- Describe 1 negative aspect of using simulations as teaching techniques
- Complete a task analysis
- Design a simulation exercise
- Describe the proper use of teaching assistants in developing practical skills

Overview of Lesson Contents

Performance contains 3 elements: *knowledge* (cognitive), *skills* (psychomotor) and *motivation* (affective). Psychomotor skills on the other hand are strictly skill demonstrations or mimicry and require no knowledge of why, when or how they should be applied. It may be completed in isolation, exclusive of other performance requirements. Performance is obviously far more complex.

Any skill can be taught to anyone who has the requisite physical capabilities. Skill acquisition does not equal performance.

A 5 step approach to teaching practical skills includes

1. defining the terminal skill
2. describing the intermediate steps
3. identifying any prerequisites
4. demonstrating the skill, and
5. having the student return the demonstration

A method of identifying the intermediate steps is known as task analysis. Task analysis is a method of studying a skill and breaking it down into smaller components to facilitate learning. The advantages to using task analysis are that it increases the learning rate, increases the retention rate, allows for more meaningful intervention and provides a basis for positive reinforcement. It also serves as a basis for more objective feedback.

Each step must be:

- Sequential
- Meaningful
- Small enough to be easily learned and remembered
- Written

To complete a task analysis:

- Have someone known to possess the skill perform it

- Have someone record each step
- Have the expert repeat the skill based on the task analysis
- Have someone who doesn't know the skill attempt to complete it according to the task analysis
- Refine the task analysis
- Break problem steps down further
- Clarify descriptions
- Recheck terminal skill expectation.

Successful skill demonstrations are dependent upon several factors including:

- Equipment: Available, functioning, sufficient quantity
- Demonstration: Organized, visible, meaningful
- Instructor: Well versed, well prepared, reinforcing, repetitious, at appropriate level

Common errors in skill instruction include:

- Demonstration errors
- Follow-up errors

In order to facilitate skill acquisition and retention, the instructor will often have to rely on teaching assistants. In order to use them effectively, the instructor should:

- Evaluate qualifications and knowledge base
- Identify potential scheduling conflicts
- Outline their role during the training program
- Review method of evaluation to be utilized
- Familiarize the teaching assistant with the evaluation tool to be utilized and with the expected student performance

Assuring the outcome when using teaching assistants:

- Orient all teaching assistants and/or guest lecturers
- Monitor and evaluate performance of assistants

Simulations are an exercise in which field situations are imitated and the student is expected to respond and perform in a manner consistent with his/her training.

Types of Simulations:

- Programmed patient situations
- Role playing
- Problem solving
- Computer simulations
- Manikins, models and simulators

Advantages of Simulations:

- Contrived experience (second most effective learning method)
- Simulates the field environment
- Prepares students to handle frequently and infrequently encountered situations
- Does not subject real patients to "student" performance
- Allows the instructor to more objectively measure total performance capabilities in his students, including decision making
- Allows the student to more objectively determine if he or she truly wants to pursue a career in EMS
- Subjects students to the stresses of the occupation

Disadvantages of Simulations:

- Time consuming
- Requires extra personnel
- Requires equipment

Components of Simulations:

- Personnel
- Situation
- Environment

Programmed patients are a simulation in which the student is expected to control the scene, assess the patient, prioritize the injuries and provide appropriate treatment as a method of learning and maintaining performance proficiency.

Components of Programmed Patients:

- Personnel
- Injuries
- Environment

Methods of simulating injuries:

- Make up
- Waxes
- Moulage

Study Suggestions

1. In the most recent EMS class that you have participated in either as an instructor or a student, estimate the amount of time that was spent on practical skill development. Was it adequate? List three ways in which the practical skill and performance development could have been improved.
2. Recall the most effective simulation exercise which you have been involved in and list the things that made it effective. Did it contain all of the essential components? Did it contain others?
3. Develop a simulation situation relevant to the content area you will be instructing in.

Lesson 9
Providing Student Feedback

Introduction

During your career as an EMS instructor, you will encounter a variety of individuals in the classroom. To facilitate learning and performance the instructor must be able to identify areas of weakness and efficiently provide input to the student to help him or her correct those deficiencies. The general principles introduced in this lesson should increase the effectiveness of such efforts. The tendency to allow marginal or poor performers to "slide" must be reversed to ensure the quality of patient care provided in the field.

Objectives

At the conclusion of lesson 9, the instructor will have provided sufficient information, demonstration and practice to the student to ensure his/her ability to:

- Distinguish between evaluation and feedback
- Define corrective feedback
- Describe why it is important to provide feedback to students
- List 6 general principles of providing feedback to students
- Write 1 example of each of the 4 levels of corrective feedback
- Demonstrate how to provide corrective feedback

Overview of Lesson Contents

Feedback and evaluation differ. Feedback is an instructional method which is designed to improve subsequent performance. Evaluation is a comparison of performance against a standard. Interim evaluations may provide the basis for feedback. Formal certification/licensure may not be instructional in nature.

Feedback is an instructional technique whereby the instructor analyzes a student's cognitive or psychomotor performance, identifies correct and incorrect components and provides the student with information which will help him or her to make subsequent performances more correct.

Feedback:

- Should *be a positive experience for the student* regardless of the quality of the performance
- Should be a learning process
- Takes place in practice and as the result of interim examinations
- Should not be "critical" in nature
- Should allow for student response
- Must be based on accurate observation
- Must be based upon a known standard

Feedback is important because:

- It lets the student know where he or she stands
- It reduces frustrations and tensions in the classroom
- If corrective feedback is not provided the student assumes everything is "OK"; no news is good news
- Avoids problems later during formal evaluations

Principles of providing corrective feedback include:

- Be descriptive rather than judgemental
- Be specific rather than general
- Focus on performance, not personality
- Share information, don't give advice
- Make sure feedback is well timed, not delayed
- Make feedback private, not public

- Provide feedback in manageable quantities not all at once
- Be positive not critical

There are several methods of corrective feedback including:

no instructor involvement
verbal feedback
written feedback
visual feedback
physical feedback.

Study Suggestions

1. Describe an instance and an example of where and how each level of corrective feedback could be used.
2. List 1 example each of when feedback is appropriate and when evaluation is.

Lesson 10
Evaluating Student Performance

Introduction

Multiple situations exist where evaluation will be necessary. The effectiveness of training programs depends upon student achievement of the stated objectives for the program. Instructors must understand the principles of evaluation and must be able to use effective evaluation tools to assess student progress and performance.

Objectives

At the conclusion of lesson 10, the instructor will have provided sufficient information, demonstration and practice to the student to ensure his/her ability to:

- Define evaluation
- Distinguish between formal and informal evaluation
- Identify 4 types of evaluation tools
- Identify the 3 advantages of each type of evaluation tool as it relates to cognitive and/or psychomotor performance
- Identify 3 disadvantages of each type of evaluation tool as it relates to cognitive or psychomotor performance
- Define reliability
- Define content validity
- Develop 2 examples of correctly constructed test items for cognitive evaluation in each of the following categories: multiple choice, true/false, completion, matching and essay
- Develop a skills checklist to evaluate psychomotor performance

Overview of Lesson Contents

Evaluation may be defined as a mechanism of determining student progress toward the attainment of stated cognitive and psychomotor objectives.

The 2 main methods of evaluation are:

- Formal: A structured cognitive or psychomotor instrument to assess student's attainment of interim and/or terminal course objectives
- Informal: A less structured method of assessing student achievement during the training program, used primarily to provide corrective feedback.

There are a number of instruments which may be used for evaluation at either the formal or informal evaluation.

1. Written examinations
2. Practical examinations
3. Oral examinations
4. Workbook or project assignments
5. Behavioral checklists (observational reports)

1. Written Examinations:

Objective questions:

- Advantages

  Can be used with large numbers of students

  Measures cognitive objectives

  Provides for consistent scoring

  Particularly useful when easy scoring is important.

- Disadvantages

  Time consuming to develop

  Complex validation procedures

Discriminates against poor readers
Cannot measure performance

Essay questions:

- Advantages
  - Easy to prepare
  - Assesses student recall
  - Assesses analytic skill
  - Provides for evaluation of written language skills.
- Disadvantages
  - Extended time to score
  - Objective scoring is difficult
  - Discriminates against students with poor language and writing skills
  - Difficult to use with large groups

2. Practical Exams:
   - Advantages
     - Most closely approximates field conditions
     - Allows observation and evaluation of related behaviors and attitudes
     - Allows evaluation of psychomotor skills
     - Allows evaluation of decision-making and leadership skills
   - Disadvantages
     - Difficult to standardize
     - Time consuming to prepare and deliver
     - Requires numerous personnel
     - Limited in numbers examined at any one time
3. Oral Examinations:
   - Advantages
     - Evaluates "quick thinking" or reactions
     - Makes explicit the student's thought processes
     - Can be evaluated by multiple listeners simultaneously
   - Disadvantages
     - Can test only a limited number at any one time
     - Difficult to standardize
     - Examiner may give clues
     - Time consuming
     - Personalities may influence outcome
4. Workbook or Project Assignments:
   - Advantages
     - Allows independent completions
     - Evaluates ability to synthesize data.
   - Disadvantages
     - Plagiarism may be prevalent
     - Difficult to standardize
     - Measures only the product of performance.
5. Observational Reports:
   - Advantages
     - Reliability is inherent due to repeated observation

Can be used for psychomotor or affective evaluation

Reliability can be increased by increasing observations.

- Disadvantages

  Presence of evaluator may influence student performance

  Time consuming

  Developing the criteria sheet is a complex task.

Reliability refers to the consistency of the measurement device. Does it measure a given behavior or body of knowledge the same on different occasions? Does the environment influence consistency? Do different ıdministrators influence results? Does it discriminate against groups or ndividuals?

Content validity refers to the ability of an examination process to measure the knowledge and skills it was intended to measure, in accordance with the curriculum objectives. Are the subtests weighted and distributed properly? Does it cover a reasonable sample of the knowledge and skill objectives? Is it an accurate predictor of field performance?

When developing *multiple choice* questions you should start by creating the stem. Within the stem, confine each topic to a single question to which a phrase or word is added to complete the thought. Write the stem in a positive form. When creating the distractors which will accompany the answer, make certain that there is only one best answer. Make the distractors believable or "seductive," avoid using absolute modifiers in the phrase and make the distractors grammatically consistent with the stem.

Steps in writing multiple choice questions:

- Select the content area
- Determine what you expect the student to know or do
- Decide what goes into the stem
- List plausible distractors
- Complete the item
- Review draft item
- Refine.

Writing true/false items:

- Eliminate absolutes
- Include one idea per item
- Make true and false statements about the same length
- Arrange items so that true or false answers appear randomly
- Provide for a relatively equal distribution of true and false responses.

Writing matching items:

- Set should consist of 3 to 8 items
- Should all be on the same page
- Use a different number of possible responses than items
- Eliminate irrelevant wording.

Writing completion items:

- Omit key words or phrases, not trivia
- Allow one "point" for each blank
- Make blanks uniform in length
- Assure that only one correct answer can complete the item
- Avoid text book language to reduce verbal association
- Specify terms or units that the answer is to be given in, e.g., cc.

Writing essay items:

- Require application of the essential knowledge
- Write specific questions which can be answered briefly
- Write answers to each item to be used in grading.

General guidelines for test construction include:

- Write the test early
- Relate the test to the objectives
- Weigh subtests appropriately
- Allow 1 minute per item
- Reread, evaluate and administer the exam
- See if it is working.
- Extensive organization is required to ensure outcome of a situationally oriented performance evaluation

Good skill or performance evaluations have common characteristics including: objectivity, replicability, fairness and realism. Whenever you are developing practical evaluation tools, remember those characteristics.

Study Suggestions

1. Practice writing examples of each type of written evaluation instrument.
2. Develop a practical skill evaluation checklist for rote mechanical skills
3. Develop a situationally oriented evaluation scenario.

Handouts

Handouts and worksheets relevant to this lesson are contained in Appendix B.

Lesson 11
Mini Presentation Two

When developing practical skill evaluations determine what you wish to evaluate. Rote mechanical skills are the easiest skills to examine. They require only completing a task analysis of the skill. They may or may not reflect field performance.

If you are evaluating performance, it must include judgement and/or decision making. This type of an evaluation requires more elaborate simulations. While they are a more accurate predictor of field performance, they are also much more difficult to develop and deliver.

Steps in simple *skill evaluations:*

- Define the skill
- Create a written task analysis of the skill
- Develop a checklist commensurate with the analysis
- Each step should contain some measurable criteria so all evaluators can agree on successful completion of each step
- The number of boxes to be checked should be kept to a minimum to reduce error in evaluation
- If possible, the evaluator should not be asked to qualify performance, merely to observe and record it

Steps in completing *performance evaluations:*

- Define outcome
- Design the situation so it will be representative of the desired outcome
- List all activities which should ideally be completed in the situation
- Make each step independently observable and measurable
- Avoid qualification of student performance by the evaluator to whatever degree is possible

Introduction

During your career as an EMS instructor, you will be called upon to present a variety of material to a variety of students. Fundamentals of planning, preparation, presentation and evaluation which have been presented throughout this class will serve as the basis for this presentation. The opportunity to receive corrective feedback on your presentation will serve as a valuable opportunity for you to improve subsequent presentations.

Objectives

At the conclusion of lesson 11, the instructor will have provided sufficient information, demonstration and practice to the student to ensure his/her ability to:

- Prepare a lesson plan for an 8 to 10 minute presentation on an EMS-related topic either assigned by the instructor trainer or selected by the student
- Ensure that the lesson plan contains all of the essential components and is in a format similar to the standard DOT Instructor's Lesson Plan
- Present an 8 to 10 minute instructional session on an EMS-related topic
- Observe other student's presentations and provide positive suggestions for improvement of subsequent lessons.

Study Suggestions

1. Develop your lesson plan. Check to see that it has all 6 of the essential components.
2. Develop at least 2 audio visual aids to support your presentation.
3. Review the 4 "Cs" of effective delivery and decide how you will apply each of them to this presentation.

4. Review the presentation evaluation form that will be used and list some general principles that will help you give positive and helpful feedback to your fellow students.

Handouts

A mini presentation evaluation form similar to that which was used in lesson 7 will be used for this lesson and is contained in Appendix B.

Lesson 12
Orientation To DOT/NHTSA Format And Materials

Introduction

During your career as an EMS instructor you will, hopefully, teach many EMS-related courses. As has often proven to be the case, these courses will not be limited to a singular content area, but may overlap into several different programs. You need to be familiar with the available materials and resources in each of the related content areas so that you can properly prepare, present and evaluate each of the training levels in accordance with local, State and national standards and guidelines.

Objectives

At the conclusion of lesson 12, the instructor will have provided sufficient information, demonstration and practice to the student to ensure his/her ability to:

- List at least 6 DOT/NHTSA EMS curricula titles
- Order any desired DOT/NHTSA curriculum package from the appropriate government agency
- Name the controlling State agency for the curriculum she/he intends to teach
- Identify any local, regional or State resources which should be contacted for materials, equipment, manpower or supplies prior to beginning an instructional program.

Overview of Lesson Contents

DOT/NHTSA Curricula

Emergency Medical Technician-Ambulance: National Standard Curriculum, (3rd Edition 1984).

Refresher Training Program; Basic Emergency Medical Technician: National Standard Curriculum (1977) for use with the above referenced Instructor Lesson Plans and Student Study Guide. (Currently under revision.)

Emergency Medical Services: First Responder Refresher Training Course (March 1979). (Formerly titled Crash Injury Management for Law Enforcement Officers.)

Refresher Training Program: For First Responder Training Course, 1985, 1st Edition. (Currently under development.)

Refresher Training Program: For Emergency Medical Technician—Paramedic, 1st Edition, 1985. (Currently under development.)

Emergency Medical Care, A Manual for the Paramedic in the Field, 1983.

Emergency Medical Service—Dispatcher: National Standard Curriculum, 2nd Edition, 1983.

NEAR Monitor Training Program and Training Program for Operation of Emergency Vehicles.

Crash Victim Extrication Training Course (1979).

Hazardous Materials, Emergency Response Guidebook (1980).

Emergency Medical Services Instructor: National Standard Curriculum (1985). (Currently under development.)

Motor Vehicle Trauma Slides.

16 mm Film: *Between Life and Death*. Color, 25 min.

Within each State or locality there are certain regulatory requirements which must be followed to ensure that each training program is recognized by the proper authorities. You need to know which agency is responsible, what the mechanisms of approval are, what forms are required and who should be contacted.

Additional requirements may need to be met for:

Monitoring Training

Certification/Licensure of students

Certification/Licensure of instructors.

Each locality has an infinite amount of resources. It is important that the instructor know how to access the following:

- Materials
  - Audiovisual
  - Printed Matter.
- Equipment
  - EMS
  - Instructional.
- Manpower
  - Instructors
  - Assistants
  - Patients, etc.
- Facilities
  - Teaching
  - Clinical.

Study Suggestions

1. Review as many of the DOT/NHTSA EMS curricula materials as are available to you so that you can be familiar with the format and content.
2. Make a list of resources which may be available within the community in which you will be instructing.

Handouts

A list of publications and curricula available from the Government Printing Office is included in Appendix B. Because prices and availability change periodically, check for accuracy before ordering.

Addresses

Government Printing Office
Superintendent of Documents
Washington, D.C. 20402.

National Audiovisual Center
Sales Branch
Government Services Administration
Washington, D.C. 20409.

United States Department of Transportation/
National Highway Traffic Safety Administration
NAD-51
General Services Division
400 7th St. S.W. Washington, D.C. 20590.

Appendix A
Selected References on Instruction and Learning

Periodicals

How to Evaluate Training Programs, Capital Publications, 1300 N 7th Street, Arlington, VA (Monthly).

Phi Delta Kappan, Phi Delta Kappa, Inc., P.O. Box 789, Bloomington, IN (Monthly).

Training and Development Journal, American Society for Training and Development, 606 Maryland Avenue SW, Washington, DC (Monthly).

Training: The Magazine of Human Resource Development, Lakewood Publishing, Inc., 731 Hennepin Avenue, Minneapolis, MN (Monthly).

Books

1. PRINCIPLES OF TEACHING AND LEARNING

Gagne, R. M.: *Essentials of Learning for Instruction*. Holt, Rhinehart and Winston, New York, 1974.

Gagne, R. M.: *The Conditions of Learning*. Holt, Rhinehart and Winston, New York, 1965.

Craig, R. L. (Ed.): *Training and Development Handbook*. McGraw-Hill, New York, 1976.

Kidd, J. R.: *How Adults Learn*. (2nd Ed), Associate Press, Chicago IL, 1979.

Knowles, M. S.: *The Adult Learner: A Neglected Species*. Gulf, Houston TX, 1973.

Knowles, M. S.: *The Modern Practice of Adult Education*. Association Press, New York, 1970.

Laird, D.: *Approaches to Training and Development*. Addison-Wesley, Reading MA, 1978.

Mager, R. F.: *Measuring Instructional Intent or Got a Match*. Fearon Publishing, Belmont CA, 1977.

Mager, R. F. and Beach, K.: *Developing Vocational Instruction*. Fearon Publishing, Belmont CA, 1978.

Mager, R. F. and Pipe, P.: *Analyzing Performance Problems*. Fearon Publishing, Belmont CA, 1976.

Scollon, R. and Scollon, S. B. K.: *Interethnic Communication*. Alaska Native Language Center, University of Alaska, Fairbanks AK, 1980.

2. PERFORMANCE OBJECTIVES

Bloom, B. (Ed.): *Taxonomy of Educational Objectives—The Affective Domain*. Donald McKay, New York, 1956.

Bloom, B. (Ed.): *Taxonomy of Educational Objectives—The Cognitive*. Donald McKay, New York, 1964.

Gronlund, N. E.: *Stating Behavioral Objectives for Classroom Instruction.* Macmillan, New York, 1970.

Mager, R. F.: *Preparing Instructional Objectives.* (2nd Ed.), Fearon Publishing, Belmont CA, 1975.

Vargas, J. S.: *Writing Worthwhile Behavioral Objectives.* Harper & Row, New York, 1972.

3. INSTRUCTIONAL AIDS

Anderson, R. H.: *Selecting and Developing Media for Instruction.* Van Nostrand Reinhold, New York, 1976.

Brown, J. W. and Lewis, R. B. (Eds.): *AV Instruction: Technology, Media and Methods.* (5th Ed.), McGraw-Hill, New York, 1977.

Johnson, S. R. and Johnson, R. B.: *Developing Individualized Instructional Material.* Westinghouse Learning Press, Palo Alto CA, 1970.

4. PRACTICAL SKILLS INSTRUCTION

Horn, R. and Zuckerman, D. W.: *The Guide to Simulation/Games for Education and Training.* Information Resources, Lexington MA, 1976.

5. EVALUATION

Becker, W. C.: *Teaching 3—Evaluation of Instruction.* Sciences Research Associates, Chicago IL, 1976.

Denova, C. C.: *Test Construction for Training Evaluation.* Van Nostrand Reinhold, New York, 1979.

Ebel, R.: *Essential of Educational Measurement.* (2nd Ed.), Prentice-Hall, Englewood Cliffs NJ, 1978.

Gronlund, N. E.: *Measurement and Evaluation in Teaching.* Macmillan, New York, 1965.

Kirkpatrick, D. L. (Ed.): *Evaluating Training Programs, A Collection of Articles From the Journal of the American Society for Training and Development.* ASTD, Madison WI, 1975.

Popham, W. J.: *Evaluation in Education.* McCutchan, Los Angeles CA, 1974.

Selected Articles

Broadwell, M. M.: *How to Improve the Next Batch of Course Objectives You Write.* TRAINING, May 1976, Page 50.

Broadwell, M. M.: *The Use and Misuse of A-V.* TRAINING, October 1970, Page 40.

Calkins, C. F., Sanddal, N. D. and Gibson, B. A.: *Characteristics of a Competent EMT Instructor,* THE EMT JOURNAL, 5 (2):134, April 1981.

Corbett, N. A., et al: *Simulation as a Tool for Learning*. TOPICS IN CLINICAL NURSING, October 1982, Page 58.

Mallory, W. J.: *Simulations for Task Practice in Technical Training*. TRAINING AND DEVELOPMENT JOURNAL, September 1981, Page 13.

Meier, R. S., et al: *A Method for Training Simulated Patients*. JOURNAL OF MEDICAL EDUCATION, July 1982, Page 535.

Miller, M.: *Test Construction—Principles and Methods*. JOURNAL OF EDUCATION, September/October 1979, Page 21.

Sanddal, N. D.: *Using Needs Assessment to Design Continuing Education Programs*. THE EMT JOURNAL. 5 (6):436, December, 1981.

Sanddal, N. D.: *Corrective Feedback: The Tool for Achieving Performance Standards*. THE EMT JOURNAL, 5 (5):352, October 1981.

Sanddal, N. D. and Threet, K. L.: *Programmed Patients: A Method of Improving Field Performance*. The EMT JOURNAL, 5 (4):275, August 1981.

Sanddal, N. D. and Shorthill, J. L.: *Task Analysis: Roadmaps to Skill Performance*. THE EMT JOURNAL, 5 (3):210, June 1981.

Sanddal, N. D.: *Instructional Design: The Format for Performance*. THE EMT JOURNAL, 5 (1):54, February 1981.

Sanddal, N. D. and Calkins, C. F.: *EMT Training: Roles, Responsibilities and Performance Outcomes*. THE EMT JOURNAL, 4 (4):66, December 1980.

Waddell, G.: *Simulation—Balancing the Pros and Cons*. TRAINING AND DEVELOPMENT JOURNAL, January 1982, Page 80.

Weigel, A.: *Examining EMT Education: A Shift in Emphasis*. EMERGENCY HEALTH SERVICES REVIEW, Vol 2(1), 1983, Page 55.

Appendix B
Lesson 3: Development and Utilization of Instructional Objectives

Sample Objectives

At the conclusion of Lesson 19, the instructor will have provided sufficient information, demonstration, and practice to the student, to ensure his/her ability to:

- Define poison.
- List four ways for poison to enter body and give two examples of each.
- State how to contact nearest poison control center.
- List seven signs/symptoms of poisoning.
- List the immediate steps in emergency care of poisoned patient.
- List three circumstances when vomiting should NOT be induced in patients suffering from ingested poison.
- State how to induce vomiting in adult patient.
- State how to induce vomiting in a child.
- State emergency care of unconscious victim of poisoning.
- List emergency care for victims of inhaled poison.
- List emergency care for victims of injected poison.
- List emergency care for victims of absorbed poison.
- List five signs/symptoms of patient suffering allergic reaction to an insect sting.
- State emergency care for a patient suffering allergic reaction to an insect sting.
- State physical characteristics of a pit viper and a coral snake.
- List four signs/symptoms of patient bitten by pit viper.
- List four signs/symptoms of patient bitten by coral snake.
- List emergency care for snake bites.
- List three examples of stinging marine animals.
- Describe emergency care for marine animal stings.
- List three examples of marine animals that can cause puncture wounds.
- Describe emergency care for puncture wounds from marine animals.
- Define atherosclerosis.
- Define myocardial infarction.
- List four risk factors associated with heart disease.
- List three causes of heart attack.
- Define angina pectoris.
- List signs/symptoms of angina.
- List signs/symptoms of heart attack.
- List the emergency care/treatment for angina.
- List the emergency care/treatment for MI.
- Define chronic congestive heart failure.
- List signs/symptoms of congestive heart failure.
- State the emergency care for congestive heart failure.
- Define stroke.
- List three causes of stroke.
- List seven signs/symptoms of stroke.
- Describe steps in treatment of stroke patients.
- List special considerations for treatment of stroke patients.
- Define dyspnea.
- Define pulmonary edema.
- Define chronic obstructive pulmonary disease.
- List three non-traumatic causes of dyspnea.
- List signs/symptoms of pulmonary edema.
- List signs/symptoms of COPD.
- Define hyperventilation.
- List signs/symptoms of hyperventilation.

- List steps in treatment of hyperventilation.
- Provide practice for objectives for lessons in CPR and mechanical aids to resuscitation.

Sample Worksheet For Writing Instructional Objectives

Conditions	Performance	Criteria

Sample Objectives

Conditions	Performance	Criteria
Given a list of 12 parts	the student will be able to identify on the microscope	at least ten of the given structures correctly.
Given a list of definitions	the SWBAT match the terms andragogy and pedagogy with correct definitions	in less than 2 minutes.
By the end of the week	the SWBAT play a simple tune on the musical instrument of his choice	making not more than one error.
Given a drawing of the interior of the human torso	the SWBAT will correctly identify the vital organs	with 80% accuracy.

Appendix B
Lesson 4: Preparing and Using Lesson Plans

Objectives

Sample Lesson Plans

By the conclusion of the unit, the instructor will have provided the student with sufficient information, demonstration and practice to ensure that the student is able to:

—Given 5 simulated calls, correctly use the Medical Dispatch Priority Reference System to determine the level of EMS response to be dispatched.

—Given 5 simulated calls, correctly use the Medical Dispatch Priority Reference System to provide the caller with detailed emergency care instructions appropriate to the patient problem.

Suggested Time Frame

4-6 Hours (Elapsed time shows a six hour time frame)

Requirements

Materials: (One for each student)

- Student Study Guide
- Student Performance Objectives
- Call report and recording form (5 per student)
- Medical Dispatch Priority Reference System (approved for local use)
- Audio or videotape of dispatcher providing emergency care instructions to caller.

Equipment:

- Lectern
- Slide projector and screen
- Overhead projector
- Chalkboard or flipchart
- Telephone trainer set (one for each two students)
- Tape player (audio or video, as appropriate).

Visual Aids:

- Slides and/or transparencies of Medical Dispatch Priority Reference System Cards.

Instructors:

- Course Instructor
- Physician or other emergency medical care provider to provide a condition-by-condition review of the Medical Dispatch Priority Reference System.

Instructor Preparation/Tasks

The Instructor Should:

—Review the unit outline to assure understanding of contents and procedures.

—Review and preview all references and visual aids related to this unit.

—Select and prepare appropriate instructional aids, if needed.

—Be familiar with all visual aids and equipment to be used and demonstrated during this unit.

—Assure that all instructional equipment is operating properly.

—Assure that the Medical Dispatch Priority Reference System to be used has the approval of local medical and EMS authorities.

—Brief emergency medical care provider who will present the condition-by-condition review of the Medical Dispatch Priority Reference System.

—Prepare sample messages for use in simulation of call for assistance and response using the Medical Dispatch Priority Reference System. (See Appendix E).

—Monitor and critique all demonstration and practice sessions.

Time (Elapsed) Actual	Contents
Administrative Matters (---) 0:05	1. Student attendance 2. Announcements, etc.
Introduction (0:05) 0:10	1. Review materials covered in previous unit. a. Results of CPR certification tests. b. Comments on practical skills session. 2. Stress need for continued practice and review of CPR skills. 3. Overview objectives for this unit.
General Considerations (0:15) 0:10	1. Different localities will establish different policies regarding the dispatcher's responsibility to provide emergency care information to caller. a. In some cases, callers will be patched directly to a physician for advice. b. In others, the decision will be made not to provide such advice. 2. If lives are to be saved through prompt citizen access and action, however, there will be situations where emergency care instructions will need to be provided by the EMS dispatcher. 3. The dispatcher must also make decisions about what emergency response units to dispatch based on the emergency care needs of the patient and the available resources. 4. Consequently, the EMS dispatcher must be prepared to determine what emergency care needs exist and what response and/or instructions are needed. 5. Each local area must also determine what policies will be followed in providing emergency care information, taking into account the: a. Availability of phone patches to physician. b. Perceived legal risks and protection. c. Response times of EMS units. 6. In determining whether to provide emergency care instructions, the dispatcher must consider the following element: a. How soon is an EMS unit likely to arrive at the scene? b. What are the likely consequences if nothing is done before help arrives? c. Is the caller willing and able to provide needed emergency care? d. How likely is the caller to aggravate the victim's condition when attempting to carry out the emergency care instructions? e. Is the condition one in which immediate emergency care steps would be possible and useful? 7. The simplest and safest way to address all these general considerations is to establish a local policy endorsed by EMS and medical authorities and develop a Medical Dispatch Priority Reference System to guide EMS dispatchers in providing emergency care instructions and EMS unit dispatch.
Process of Providing Dispatch and Instructions (0:25) 0:15	1. Role of the EMS dispatcher in providing emergency care instructions. a. The role of the EMS dispatcher is to obtain specific medical information to accurately prioritize each medical response as listed in the Medical Dispatch Priority Reference System.

1) Each page deals with a specific medical problem listed by symptom or incident type.
2) For each problem, a predetermined response level is stated based on the medical significance of available information.

b. The dispatcher must carry out two specific functions to be effective in this process—information collection/caller instruction and dispatching.
1) In large centers, these functions may be separated.
2) The person carrying out the information collection/caller instruction function may be trained in emergency care (e.g., EMT, EMT-P, etc.)
3) In small centers, both functions may be carried out by same person.

c. Information—collection/caller instruction
1) Obtain from the calling party the address or location of the emergency.
2) Obtain from the caller the chief complaint and whether the caller is with patient.
3) Using the Medical Dispatch Priority Reference System:
a) Ask the key questions (chief complaint, age).
b) Indicate to the dispatcher (or dispatch directly) the EMS vehicle response indicated in the manual.
c) Give the listed pre-arrival instructions.
d) Obtain appropriate medical history and additional information for relay to responding units.
e) Obtain telephone number of caller.

d. Dispatching
1) Alert appropriate apparatus as determined by the Medical Dispatch Priority Reference System.
2) Relay to responding unit(s):
a) Age
b) Chief complaint
c) Conscious (?)
d) Breathing (?)
3) Assist EMS vehicles in finding addresses.
4) Relay information and establish communications links between various EMS units, hospitals and other public safety agencies.

2. The effective dispatch of EMS units and the proper provision of emergency care instructions depends on the quality and quantity of information elicited from the caller.
a. A standard checklist and set of questions is essential.
b. A quick reference manual keyed to complaints will save time.

Format of Medical Dispatch Priority Reference System
(0:40) 0:20

1. **Key Questions**—the minimum amount of information necessary to establish the correct level of EMS response.
a. Medical cases.
1) Key questions are generally based on symptoms
2) The caller usually is with the patient or is familiar with the patient or the problem.

b. Trauma cases.
   1) Key questions are generally based on type of incident rather than specific symptoms, since caller usually is a third-party observer not with the patient.
   2) Key question example: How far did he fall? Determine categorization between "long fall" and "ground level fall" responses.

c. Limitations.
   1) The key question system is based on the idealistic assumption that all information asked for is available.
   2) Frequently, the dispatcher must modify questioning to "fill in gaps."

2. **Pre-Arrival Instructions**

a. The aims in giving pre-arrival instructions are:
   1) To assist the caller in keeping the patient from doing further injury.
   2) To enable caller to do as much as possible to save a patient in a life threatening situation.

b. General instructions given to most all callers include:
   1) Calm down
   2) Don't move the patient (with exceptions, including:
      a) Fire
      b) Carbon monoxide)
   3) Observe what patient is doing.
   4) Send someone outside to indicate location of emergency to responding units.

c. The categories of emergency care instructions most frequently used are:
   1) Airway management
      a) Head tilt
      b) Obstructed airway procedures
      c) Pulmonary resuscitation
      d) Remove pillows from behind head.
   2) CPR
   3) Direct pressure to control bleeding.
   4) Cooling small burns with cold water.

3. **Dispatch Priorities**

a. Indicates what type of EMS response is most appropriate.

b. Must be specifically adjusted to local resources and system.

c. Pages may also be added to list specific ambulance services, fire departments, police agencies, etc.

d. Dispatching should be done as soon as adequate information is collected.

4. **Additional Information**

a. Additional questions to be asked to gain relevant medical information after a response has been started:
   1) Information collected should be relayed to responding vehicles.
   2) Need for additional responses may be determined.

b. Additional information about condition which may be helpful in further decisions.

Ten-Minute Break
(1:00) 0:10

Dispatch Specific Medical Training
(1:10) 3:30
(With Ten-Minute Break After Each Hour)

1. Review each page of the Medical Dispatch Priority Reference System and discuss:
   a. General problems and incident types encountered in each category.
   b. The importance of symptoms as they relate to dispatching.
   c. Key questions for each category.
   d. Pre-arrival instructions for each category.
   e. Dispatch priority for each category.
   f. Additional information to be gathered relevant to each category.
2. As required in a local area, sections of the Medical Dispatch Priority Reference System may refer to any or all of the following:
   a. Local Policies
   b. Laws
   c. Equipment
   d. Procedures
   e. Geography
3. Manual should also include a protocol for notifying specific persons of unusual situations such as multiple casualties, major fires or accidents, hazardous materials spills, etc.

Demonstration/Practice (Divide Students Into Groups of Two)
(5:10) 0:40

1. Students should hear or observe a dispatcher providing emergency care instructions and dispatching appropriate responses.
2. Each student should have the opportunity to practice utilizing the Medical Dispatch Priority Reference System to make dispatch decisions and provide emergency care instructions in response to five simulated calls.

Summary and Questions
(5:50) 0:10

1. Class questions or comments on unit.
2. Instructor review of major points noted in practice session.
3. Assign student study guide activities and preparation for next unit.

(6:00)

Instructor's Notes

Show specific examples on pages from manual.

Show page of manual as example. Use local terminology for response modes.

Use locally approved manual. If possible, an M.D. who has been involved in manual development should present this material.

53

Instructor's Notes

Since each area will develop it own set of protocols based on specific needs and medical input, some of the specific protocols listed may be modified or combined.

54

Instructor's Notes

Locally produced or nationally available tapes can be used. Actual observation in dispatch center is also encouraged.

Instructor should monitor and critique all practice. Student should be allowed to practice until competent in all skills involved.

55

Lesson Plan Guide

Before Class

Objectives:

Knowledge

Skill

Requirements:

Equipment

Materials

Preparation/Tasks

Time	Content	Notes
	Administrative Matters	
	Introduction	
	Objectives	
	Content Outline	

Time (Elapsed) Actual	Contents

Problems

- General Considerations
- Abdominal Pain/Injuries
- Allergies/Stings
- Animal Bites
- Assaults/Rape
- Back Pain
- Breathing Problems
- Burns
- Cardiac/Respiratory Arrest
- Chest Injuries
- Childbirth/Obstetrics
- Choking
- Convulsions/Seizures
- Carbon Monoxide Poisoning/Inhalations
- Cold Injuries
- Diabetic Problems
- Drowning
- Drug Overdose
- Electrocution
- Eye Problems/Injuries
- Falls
- Fractures
- Headaches
- Head/Neck/Spine Injuries
- Heat Problems
- Heart Problems
- Hemorrhage
- Machinery/Industrial Injuries
- Multiple Complaints/Injuries
- Nonspecific Diagnosis/Illness
- Poisoning
- Psychiatric/Behavioral
- Stabs/Gunshot Wounds
- Stroke/CVA
- Suicide
- Traffic Accidents
- Traumatic Injury (nonspecific)
- Unconscious/Fainting
- Unknown Problem (man down)

Response Agencies

— Advanced Life Support Units
— Ambulance Districts
— Basic Life Support Units
— Coroner
— Crisis Intervention
— Emergency Departments
— Fire Departments
— Hospitals
— Police Departments
— Rescue Squads

Appendix B
Lessons 7&11: Main Presentations

Mini Presentation Evaluation Form

Presentor _____

Subject _____

*1	2	3

1. Lesson objectives were made clear to students
2. Lesson introduction created interest and established the need to know
3. All needed supplementary teaching/learning items were ready and organized
4. Instructor maintained proper position for all students to see presentation
5. Aids were well-planned, well-developed, and used appropriately
6. Vocabulary was at appropriate levels
7. The instructor regularly checked with students to see if they were on target
8. Information was presented in an organized format
9. Skill demonstration was presented in a logical step by step sequence
10. Appropriate teaching method(s) was (were) selected to accomplish objectives
11. The instructor's delivery was poised, effective and geared to the topic
12. Instructor stayed on the subject
13. Lesson was too long ( )
    too short ( ) for content
14. Summation and closure were effective

WHAT WERE THIS INSTRUCTOR'S STRENGTHS?

WHERE MIGHT THIS INSTRUCTOR IMPROVE?

* 1=AVERAGE 2=GOOD 3=EXCELLENT

Appendix B
Lesson 10: Evaluating Student Performance

TEST BLUE PRINT CHART

Instructions for the use of Test Blue Print Chart:

In order to appropriately structure and balance your end of unit, mid-term or final exam you need to develop a test blueprint. This is done by calculating the *percentage of time* (in hours) and *percentage of objectives* you spent on a specific topical area versus all subject matter you are testing. Generally, your exams should reflect a *proportionate* number of exam items on each content area. As related to the total time spent and total number of objectives covered in the entire course.

A Test Blue Print Chart is shown on next page.

How to fill in the chart:

Column Number	*Content*
1	List each of the lessons or content areas which have been covered.
2.	List the total number of objectives covered within each lesson or content area.
3.	Divide the number of objectives in each lesson by the total number of objectives for all lessons covered to date to determine the percentage.
4.	List the time spent on each lesson.
5.	Divide the time for each lesson by the total class time to date to determine the percentage. The percentage of time and the percentage of objectives should be relatively similar.
6.	List the number of examination items for each lesson. The number should be selected in relation to the total number of items.
7.	The percentage of items on the examination should be consistent with the percentage of objectives and time spent on each lesson or content area.

Test Blue Print Chart

	Content Areas	Number of Objectives	Percentage of Objectives	Time Required (Hours)	Percentage of Time	Number of Exam Items	Percentage of Exam Items
1.							
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							
13.							
	TOTALS						

For example, let's say an EMT-P course ran 500 hours and covered 1,000 objectives, with the cardiovascular section being covered in 100 hours and 200 objectives.

Time = 100/500 = 1/5 or 20% Objectives = 200/1000 = 1/5 or 20%

The final exam of 150 items should then be: .20 X 150 = 30 exam items on CV system or 20% of the 150 item final.

Sample #1
Candidate's Name: _____ **Date:** _____

The candidate will be given the response time before the start of the simulated call. The candidate will be expected to perform as an EMS Dispatcher and *will be evaluated* on the level of performance observed.

Title: Convulsions/Seizures **Response Time: 12 Minutes**

Caller Briefing:

You are crying and screaming "Save my baby, help my baby! Do something, now! Oh, God, Help me!!" You are just totally out of control. Your next door neighbor is there trying to help the baby. If the dispatcher asks to talk to the neighbor, change to being cooperative. The baby is in the bedroom and you are in the kitchen.

Initial Request for Assistance:

"You've got to help me, my baby's shaking all over and his eyes are rolled back in his head."

Additional Information Volunteered During Questioning:

Approximately one minute into the scene, the baby stops moving, you are afraid he is dead, but he has gurgling respirations.

Possible Points	Yes	No	Evaluation: Action: Information Sought
			Dispatch Information:
8			Gets address: 710 Main St., Clyde
8			Gets call back number: 693-4015
4			Gets exact location/rendezvous
5			Dispatches urgent response
5			Airs needed medical information (4 basics)
			Medical Information:
6			Identifies chief complaint: Shaking all over and rigid; won't wake up.
9			Identifies state of consciousness: Unconscious
9			Identifies breathing status: Gurgling/gasping
6			Identifies victim's age: 4.5 months
			Additional Questions:
3			How long has it gone on? A few minutes
3			Was the baby injured in any way? No
3			Has this happened before? No
3			Has the baby had a fever? Yes
			(None of the above is volunteered unless question is asked)

Possible Points	Yes	No	Evaluation: Action: Information Sought
			Pre-Arrival Instructions:
3			Don't restrain baby; move dangerous objects
3			Don't force jaw open
3			No CPR while seizing
3			Open airway. (When head is positioned, baby starts crying.)
3			Nothing by mouth
3			Don't go to meet ambulance
			Dispatcher Performance:
3			Did dispatcher follow the protocols?
2			Did dispatcher take control of the situation?
2			Did dispatcher ask to speak to neighbor?
1			Did dispatcher convey in his/her manner, interest in the caller's request?
2			Did dispatcher progress in appropriate order?
100			**Total Points:**_____ (100 Possible) **Candidate's Name:** _____

The candidate receives the points for every "yes" answer checked. Individual candidates total score may be increased or decreased 5 points at the discretion of the evaluator for exceptionally good or poor performance. If points are added or deleted in this manner, narrative documentation is required.

Signature of Evaluator: _____ **Date:**_____

Student's name _____

Date _____

Pass 1 2 3

Fail 1 2 3

Skill Evaluation 10.1.1.S: Nasogastric Tube Insertion

Place an "X" in the appropriate column to indicate the steps that are incorrect, out of sequence, or omitted. The student should be given three attempts to perform the skill.

Equipment

Levin tube
  Adult—No. 16 French
  Children—No. 12 French
Water-soluble lubricant
1-inch-wide tape
Small clamp
50-ml syringe
Cup of water with a straw
Emesis basin

Procedure

Each student should pick a partner and be given all equipment listed above.

Under the supervision of the instructor, the student should insert a nasogastric tube.

Steps

___ ___ ___ A. Assemble the equipment.

___ ___ ___ B. Explain the procedure to the patient.

___ ___ ___ C. Wash hands; gloves are optional.

___ ___ ___ D. Lubricate the tip and first few inches of tube.

___ ___ ___ E. Position a straw between the patient's lips.

___ ___ ___ F. Pass the tube along the floor of the nasal passage.

___ ___ ___ G. When the tube enters the oropharynx, have the patient drink and keep drinking.

___ ___ ___ H. Advance the tube into the stomach—approximately 20 inches.

___ ___ ___ I. Check the position of the tube.

Appendix B
Lesson 12: DOT/NHTSA Materials

EMERGENCY MEDICAL SERVICES PUBLICATION INFORMATION
U.S. DEPARTMENT OF TRANSPORTATION

Instructions for Ordering:

Include full title, number desired, *complete stock number*. Enclose check or money order for total cost.

Unless indicated otherwise, orders are to be sent to the following:

Superintendent of Documents Government Printing Office Washington, DC 20402	Make check or money order payable to: Superintendent of Documents

Do *not* order from the EMS Division in DOT. *This will only delay your orders.*

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1. Emergency Medical Services: FIRST RESPONDER TRAINING COURSE (March 1979) (Formerly Crash Injury Management for Traffic Law Enforcement Officers)

A. Course Guide 050-003-00360-3	$ 2.00
B. Instructor's Lesson Plans 050-003-00361-1	$ 7.00
C. Student Study Guide 050-003-00362-0	$ 3.50

NOTE: A Refresher Training Course for the above is under development. Anticipated publication date April 1986.

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2. Emergency Medical Technician—Ambulance (3rd Edition 1984)

A. Course Guide 050-003-00421-1	$ 1.75
B. Instructor's Lesson Plans 050-003-00422-7	$10.00
C. Student Study Guide 050-003-00421-9	$ 5.00

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3. Refresher Training Program for No. 2 Above

Being Developed Under a DOT Grant. Anticipated Publication Date, April 1986

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4. Emergency Medical Technician INTERMEDIATE TRAINING COURSE

This 1st Edition is under development. It will consist of a Course Guide, Instructor Manual, and Student Study Guide. Anticipated publication date is November 1985.

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5. Emergency Medical Care: Paramedic

A. A Manual for the Paramedic in the Field (1983) 050-003-00413-8 — $13.00

This is a textbook and workbook for the trainee and also a reference manual for the paramedic in the field. (Workbook included in price)

B. Emergency Medical Care—PARAMEDIC INSTRUCTOR MANUAL

NOTE: This instructor manual is under development. Anticipated publication date April, 1986. This manual will be in a single volume and will replace the 15 separate (modules) publications which were published in 1977. Some of the 15 modules (1977) are out of print and will be reprinted.

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6. Emergency Medical Services DISPATCHER: National Standard Curriculum (1983) (Second Edition)

A. Course Guide 050-003-00417-1	$ 5.00
B. Instructor's Lesson Plan 050-003-00416-2	$ 4.75
C. Student Study Guide 050-003-00415-4	$16.00

(The Student Study Guide includes Medical Reference Manual)

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7. Dispatcher Training Program for EMT's

NOTE: This is the 1st Edition, 1976, and is still considered a valuable training document.

A. Course Guide 050-003-00239-9	$ 4.50
B. Instructor's Lesson Plans 050-003-00237-2	$ 6.00
C. Student Study Guide 050-003-00238-1	$ 6.00

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8. Training Program for OPERATION OF EMERGENCY VEHICLES (1978)

A. Course Guide 050-003-00330-1	$ 4.75
B. Instructor's Lesson Plans 050-003-00332-8	$12.00
*C. Student Study Guide 050-003-00331-0	$ 5.50
D. Pursuit Driving for Law Enforcement Officers 050-003-00364-6	$ 4.00

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9. CRASH VICTIM EXTRICATION TRAINING COURSE—Emergency Medical Technician (Revised 1979)

NOTE: There is not a Course Guide for this course. The following manuals are to be ordered from the *Government Printing Office*.

A. Instructor's Manual 050-003-00343-3 $ 4.75
B. Student's Manual 050-003-00344-1 $ 4.50

A "kit" consisting of 54 color slides and the above two manuals is also available. The "kit" must be ordered from:

National Audiovisual Center
Sales Branch
General Services Administration
Washington, DC 20409

(Make check/money order payable to National Archives Trust Fund—NAC)

CRASH VICTIM EXTRICATION TRAINING COURSE—Emergency Medical Technician (Revised 1979) (Slide set and two manuals)

Order No. AO 1927/DK $25.00

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10. Air Ambulance Guidelines—National Highway Traffic Safety Administration/AMA Commission on Emergency Medical Services 1981, free (limited supply). DOT-HS-805-703

NOTE: Not available from Government Printing Office. Send request to:

Department of Transportation
Distribution NAD-51
Washington, DC 20590